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August 26, 2005  
**PN14BP.06179.03.0922**

Mr. Sam Stevens  
Environmental Programs Division  
County of Los Angeles Department of Public Works  
900 South Fremont Avenue  
Alhambra, California, 91803-1331

**Re: Work Plan for Site Assessment  
ARCO Facility 06179  
26409 Sierra Highway  
Newhall, California  
CLADPW File No. I-12822-37177**

Dear Mr. Stevens:

SECOR International Incorporated (SECOR), on behalf of Atlantic Richfield Company (Atlantic Richfield), submits this work plan proposing assessment of hydrocarbon impacted soil at the above referenced site (Figure 1). This work plan is prepared per the California Code of Regulations Title 23, Division 3, Chapter 16, Article 11 § 2724, stating that the responsible party shall conduct investigations of unauthorized releases if there is any evidence that contaminated soils are or may be in contact with surface water or ground water.

The purpose of this work plan is to assess the extent of petroleum hydrocarbon contamination detected in the soil at the site during facility upgrade activities conducted in December 2002. Discussions of site description, site background, regional geology and hydrogeology, proposed scope of work, report preparation, and anticipated schedule are provided in the following sections.

#### **SITE DESCRIPTION**

The site is an operating retail gasoline station with an am/pm™ mini-mart, four 10,000-gallon, double-walled, gasoline underground storage tanks (USTs), and six gasoline dispensers. The station is located at the northeast corner of Sierra Highway and Friendly Valley Parkway in Newhall, California. The site is at an elevation of approximately 1,520 feet above mean sea level (msl). Local topography slopes to the northeast at approximately 0.005 feet per foot (USGS, 1988). The Santa Clara River is located approximately 4,500 feet north of the site.

#### **SITE BACKGROUND**

In December 2002, SECOR was on-site to perform Rule 1166 air-monitoring and soil sampling activities associated with the removal and replacement of dispensers and associated product

pipng. Inspector Tom Custard with the Los Angeles County Department of Public Works (LACDPW) was on-site to observe and document the removal and replacement of product piping and under dispenser containment, and direct the collection of soil samples from beneath the locations of the former product lines and dispensers. Fifteen of the 15 soil samples collected from beneath the former dispensers and associated piping were reported to have petroleum hydrocarbons above laboratory method detection limits (SECOR, 2003). Soil sample locations are shown on Figure 2 and soil analytical data is summarized in Table 1.

## **REGIONAL GEOLOGY AND HYDROGEOLOGY**

The site is located within the Santa Clarita Valley along the northwestern boundary of the San Gabriel Mountains, in northern Los Angeles County. The Santa Clarita Valley floor is dissected by the Santa Clara River, an intermittent, westerly flowing river which provides the regional drainage. The regional groundwater flow direction is to the west-southwest and generally follows the course of the drainage (LACFCD, 1975-1977).

The site is located within the Santa Clara River Valley Groundwater Basin, East Subdivision. The Santa Clara River Valley East Subdivision is bounded on the south and east by the San Gabriel Mountains, on the north by the Piru Mountains, and on the west by impervious rocks of the Modelo and Saugus Formations. Groundwater generally occurs within alluvium and terrace deposits, and the Saugus Formation. Holocene age alluvium consists of unconsolidated poorly bedded, poorly sorted to sorted sand, gravel, silt, and clay with cobbles and boulders. Pleistocene age terrace deposits consist of crudely stratified poorly consolidated, weakly cemented, gravel, sand, and silt. The late Pliocene to early Pleistocene age Saugus Formation consists of as much as about 8,500 feet of poorly consolidated weakly indurated, poorly sorted sandstone siltstone, and conglomerate. Groundwater recharge occurs mainly from infiltration of surface runoff along the rivers, and percolation of rain and irrigation waters (CDWR, 2005).

The closest naturally occurring surface water is the Santa Clara River which is located approximately 4,500 feet north of the site. Groundwater depth beneath the site is estimated to be greater than 85 feet below ground surface (bgs), based on a October 15, 2002 depth measurement of Investment Water Corporation's groundwater production well Number 7139G, located approximately 4,000 feet north-northeast of the subject site (LACDPW, 2002).

## **PROPOSED SCOPE OF WORK**

### **Pre-Field Activities**

Prior to implementing any field activities, SECOR will obtain all appropriate permits from the County of Los Angeles Department of Environmental Health. Additionally, a site specific health and safety plan (HASP) will be prepared. The HASP will address potential health and safety concerns that field personnel may encounter during the proposed field event.

### **Locating Underground Utilities**

Prior to commencing the proposed field activities, SECOR will mark the proposed boring locations with white paint. Underground Service Alert (USA) South, an underground utility location service, will be contacted at least 48 hours prior to drilling. The selected utility locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Additionally, a private utility locator will be contracted to further evaluate and mark the locations of any potential subsurface underground utilities, in addition to compliance with Atlantic Richfield's Precautionary Procedures and Guidelines Document for Drilling, Subsurface Investigations and Remedial Construction Activities for Remediation Management Marketing Operations. Prior to any invasive work, the selected drilling contractor will hand auger to a minimum depth of five feet bgs in an effort to prevent compromising the integrity of unidentified subsurface obstructions.

### **SOIL BORING AND WELL INSTALLATION**

SECOR proposes to advance four vertical soil borings on-site to assess the lateral and vertical extent of hydrocarbon impact to soil. If field conditions warrant or groundwater is encountered, SECOR may install soil vapor extraction (SVE) and/or groundwater monitoring wells within the borings. The proposed boring locations are presented on Figure 2.

During drilling activities, two of the four vertical borings will be continuously cored to maximum depth of 95 feet bgs using a modified California split-spoon sampler to evaluate site stratigraphy. The remaining borings shall be advanced with samples being obtained using a modified California split-spoon sampler at a minimum of every five feet to further evaluate site stratigraphy. Soil samples will be collected from each boring at five foot intervals to provide samples for laboratory chemical analysis of soils. Qualified SECOR personnel, working under the supervision of a State of California Professional Geologist and/or Civil Engineer, will log the boring in accordance with the Unified Soil Classification System (USCS) and will visually monitor for grain size, color, consistency, staining. Hydrocarbon vapors will be monitored using a photo-ionization detector (PID). Soil samples for chemical analysis will be collected and prepared in accordance with Environmental Protection Agency (EPA) Method 5035 and placed in an ice-filled cooler for transportation to the laboratory. Field procedures are further described in Appendix A.

Investigation-derived waste generated during field activities will be contained in labeled 55-gallon Department of Transportation (DOT) approved steel drums and/or lined roll off bins and stored on-site pending receipt of analytical results. Once the analytical results are reported, SECOR will coordinate with an Atlantic Richfield approved waste hauler to transport and dispose of the materials at an Atlantic Richfield approved State-licensed disposal facility.

## **Monitoring Well Construction**

If elevated hydrocarbon impact is detected in soil during drilling activities, SVE wells may be installed in the borings. The SVE wells will be constructed of approximately 10 to 20 linear feet of flush threaded, four-inch diameter schedule 40 poly-vinyl chloride (PVC) with 0.02-inch factory slotted well screen (location based on hydrocarbon detections). If groundwater is encountered, groundwater monitoring wells may be constructed within the borings. The groundwater wells will be constructed of approximately 20 feet of flush threaded, four-inch diameter schedule 40 PVC with 0.02-inch factory slotted well screen in the boring to intercept and extend approximately 10 feet above and below the water table. The wells will be completed to ground surface with four-inch diameter, blank schedule 40 PVC casing. Monterey #3 sand or equivalent will be placed in the annular space adjacent to the well screens and will be installed to approximately two feet above the top of the well screen. One to two feet of bentonite pellets will be placed above the sand, followed by a bentonite grout mixture to approximately one foot bgs.

The wellheads will be completed at ground surface with locking well caps and traffic-rated well boxes installed slightly above the surrounding surface grade and finished with a concrete apron to provide positive relief away from the wellhead. A California-licensed land surveyor will survey the elevation of the wellheads with respect to msl datum and for lateral position using northing and easting coordinates and latitude/longitude in accordance with Assembly Bill 2886. The wellhead elevations will be measured from an existing benchmark. Wellhead elevations will be compared to depth to groundwater measurements to calculate groundwater elevation above msl as well as a groundwater flow direction and gradient.

## **Well Development and Sampling**

If groundwater wells are installed, after allowing the wellheads and grout to cure for a minimum of 72 hours, SECOR will measure the total well depth and depth to water at each well using a water level indicator calibrated to within 0.01 foot. SECOR will also check for the potential presence of liquid phase hydrocarbon (LPH) in each well using a Solinst 122 Interface probe or equivalent capable of detecting LPH thicknesses to 1 millimeter. SECOR will develop each well by alternately swabbing and surging with an appropriate sized well surge block. SECOR may then remove up to 8 to 10 casing volumes of water from each well by pumping and/or bailing or until reported dry, and monitoring the removed water for parameters such as pH, turbidity, temperature, and conductivity.

Upon completion of well development, SECOR will gauge each well and collect groundwater samples by lowering dedicated, disposable bailers into each of the wells, collecting water, and decanting the collected water into laboratory-supplied sample containers. Groundwater samples will be labeled and placed in ice-filled coolers for preservation and transport for analysis. Additional groundwater monitoring procedures are provided in Appendix A.

## **Laboratory Analysis**

Laboratory analyses will be conducted by an Atlantic Richfield approved laboratory certified by the California Department of Health Services to perform the proposed analyses. Select soil and groundwater samples collected will be analyzed for Gasoline Range Organics (GRO; C<sub>4</sub>-C<sub>12</sub>) in accordance with EPA Method 8015M; and for benzene, toluene, ethylbenzene, and total xylenes (collectively BTEX); methyl-tertiary-butyl ether (MTBE), tertiary-butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary-amyl methyl ether (TAME), tertiary-butyl alcohol (TBA), and ethanol in accordance with EPA Method 8260B.

Laboratory reports and method detection limits (MDL's) shall meet the requirements specified in the Los Angeles Regional Water Quality Control Board's May 1996 *Interim Site Assessment & Cleanup Guidebook* Appendices B and C, and specified in Lab Form 10A. Laboratory reports will include any concentration detected between the method detection limits (MDL's) and estimated quantifiable limits (EQL's) in a numeric value with a "J" flag indicator.

## **REPORT PREPARATION**

Upon completion of the field activities and receipt of all analytical data, a report will be prepared and submitted to Atlantic Richfield and the LACDPW. The report will document SECOR's methodologies used for data collection during the field activities, tabulated analytical results, site maps, boring logs, certified analytical reports, findings, and conclusions.

## **SCHEDULE**

SECOR is prepared to begin work immediately upon obtaining approval of this work plan from the LACDPW. The actual implementation of fieldwork will depend upon the time required for permit processing and subcontractor availability. Following issuance of relevant permits, SECOR will schedule the field activities pending sub-contractor availability. A report documenting these activities will be submitted to the LACDPW within four to six weeks of receipt of all analytical data from the laboratory.

## **STANDARD LIMITATIONS**

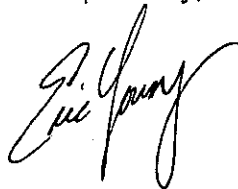
This work plan has been prepared for the exclusive use of Atlantic Richfield Company and its representatives as it pertains to the property located at 26409 Sierra Highway, in Newhall, California. Evaluations of the geologic conditions at the site for the purpose of this investigation may be inherently limited due to the number of proposed observation points. There are no representations, warranties, or guarantees that the points proposed for sampling are representative of the entire site. Data collected in response to this work plan may reflect the conditions at specific locations at a specific point in time. No other interpretations, warranties, guarantees, expressed or implied, are included or intended in the contents of this work plan.

All work will be performed under the direct supervision of a Professional Geologist or Registered Civil Engineer in the State of California. The information contained in this work plan represents SECOR's professional opinions, and is based in part on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

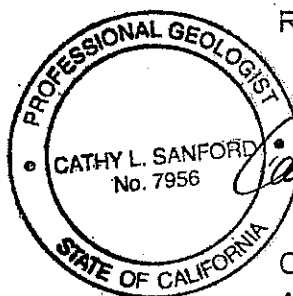
If you have any questions regarding the contents of this work plan, please call Mr. Eric Young at (714) 379-3366, extension 234.

Sincerely,  
**SECOR International Incorporated,**


Prepared by,



Eric Young  
Project Scientist



Reviewed and Approved by,



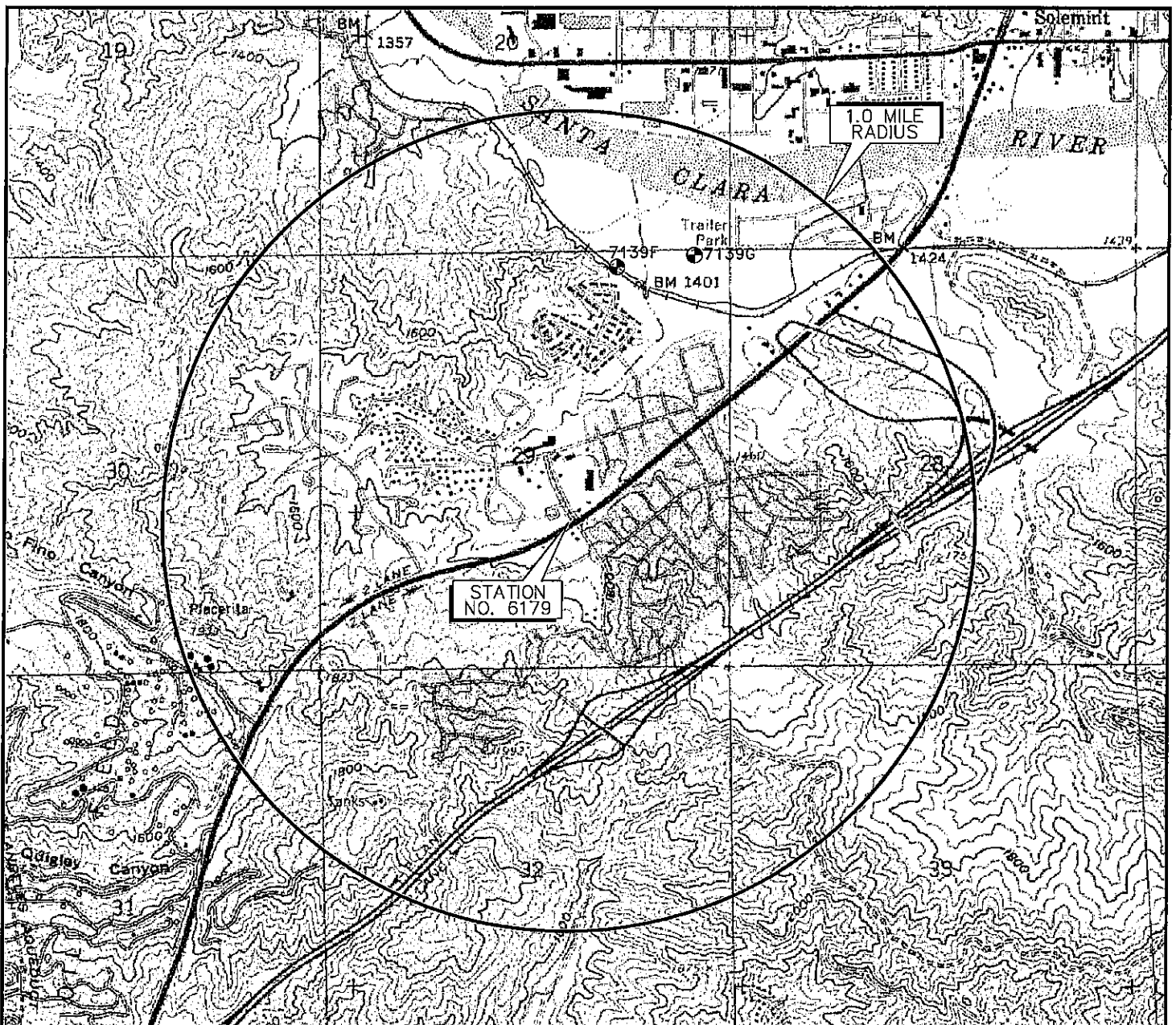
Cathy L. Sanford, PG 7956  
Associate Geologist

Attachments: Figure 1 – Site Location Map with 1-Mile Radius  
Figure 2 – Proposed Soil Boring Location Map  
Table 1 – Soil Analytical Data  
Appendix A – Standard Operating Procedures

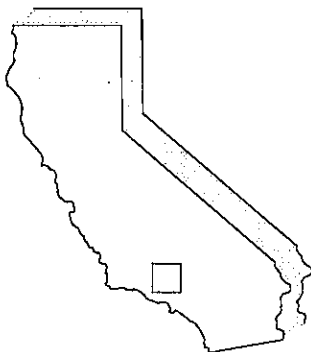
cc: Mr. Roy Thun, Atlantic Richfield Company

## REFERENCES

- California Department of Water Resources, Bulletin #104, June 1961, Reprinted May 1990, *Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County*, Appendix A: Ground Water Geology.
- USGS Topographic Map-Hollywood Quadrangle (7.5 minute series), Photorevised 1981. United States Department of the Interior-Geological Survey.
- SECOR International Incorporated, February 28, 2003 , *Product Line and Dispenser Report*, ARCO Facility 06179, 26409 Sierra Highway, Newhall, California.



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAPS, MINT CANYON QUADRANGLE 1995



0 2000 4000  
APPROXIMATE SCALE IN FEET



**SECOR**

11085 KNOTT AVENUE, SUITE B  
CYPRESS, CALIFORNIA  
PHONE: (714)379-3366/FAX: (714)379-3375

PREPARED FOR:

ATLANTIC RICHFIELD COMPANY  
ARCO FACILITY 06179  
26409 SIERRA HIGHWAY  
NEWHALL, CALIFORNIA

JOB NUMBER:

14BP.U6179.03.0902

DRAWN BY:

L. RAMIREZ

CHECKED BY:

E. YOUNG

APPROVED BY:

C. SANFORD

FIGURE:

**1**

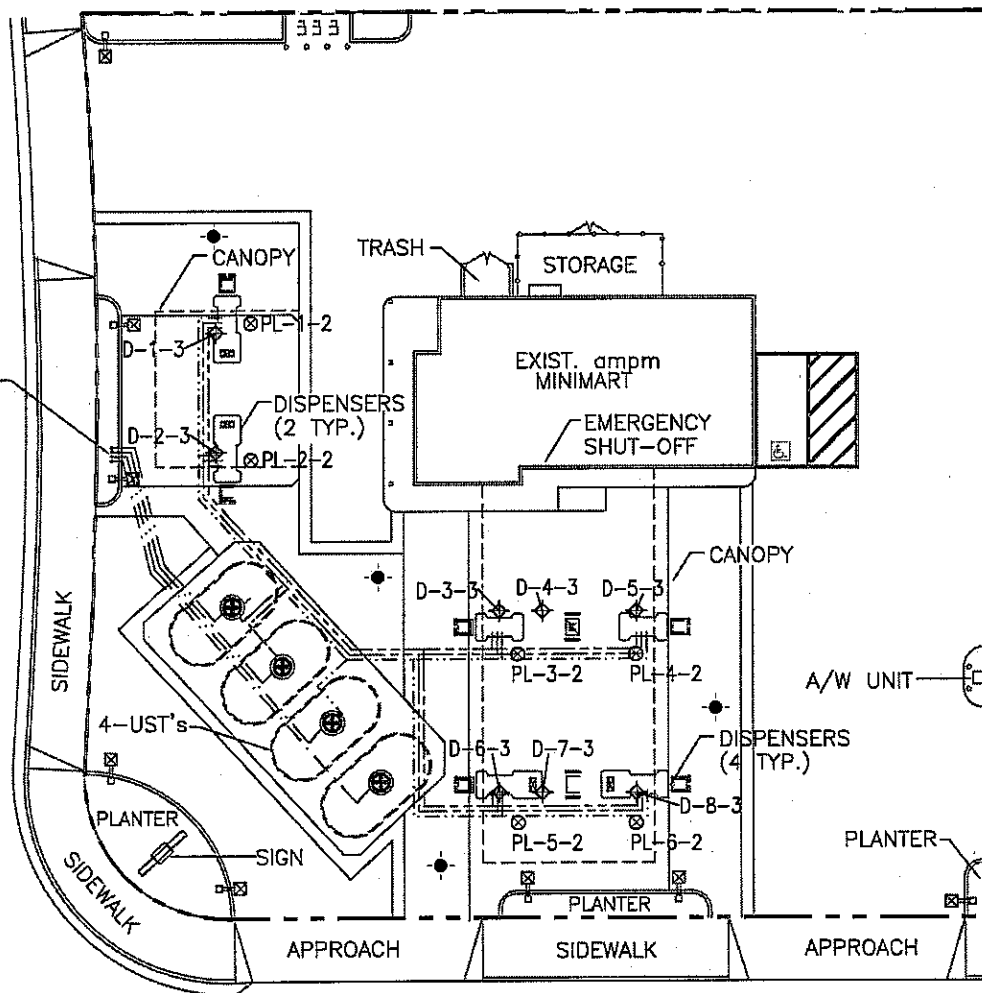
DATE:

APRIL 2005



FRIENDLY VALLEY PARKWAY

TANK VENT  
RISERS



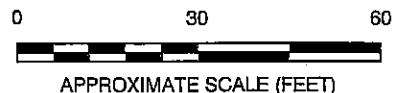
SIERRA HIGHWAY

# LEGEND

- SITE PROPERTY LINE
- 2" F.G. DOUBLE WALL PRODUCT PIPING
- 2" OR 3" F.G. SINGLE WALL VAPOR RECOVERY PIPING
- 2" F.G. SINGLE WALL VENT PIPING
- D-1-3 ✦ DISPENSER SOIL SAMPLE
- PL-3-2 ⊗ PRODUCT LINE SOIL SAMPLE
- ✦ PROPOSED SOIL BORING

# NOTES:

1. MAP REFERENCES: A & S ENGINEERING, DATED FEBRUARY 7, 2002. USGS DOQQ AERIAL IMAGE, DATED JUNE 11, 2002.
2. COORDINATE SYSTEM; NAD 83 CALIFORNIA STATE PLANE, ZONE 5 (FT.). NOT A SURVEYED MAP, SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



**SECOR**

11085 Knott Avenue, Suite B  
Cypress, California  
(805) 379-3366/379-3375 (Fax)

FOR:

ATLANTIC RICHFIELD COMPANY  
ARCO FACILITY 06179  
26409 Sierra Highway  
Newhall, California

JOB NUMBER:

14BP.06179.03.0902

DRAWN BY:

R. Roman

CHECKED BY:

C. Sanford

APPROVED BY:

C. Sanford

FIGURE:

**2**

DATE:

08/25/05

Table 1

Soil Analytical Data  
ARCO Facility 06179  
26409 Sierra Highway  
Newhall, California

SAMPLE ID	SAMPLE DATE	TPHg mg/kg	Benzene mg/kg	Ethylbenzene mg/kg	Toluene mg/kg	Total Xylenes mg/kg	MTBE mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	TBA mg/kg
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**Dispenser Replacement Soil Samples analyzed by EPA method 8015B and 8260B**

D-1-3	12/05/02	0.99 J	<0.15	0.021 J	<0.15	<0.30	2.5	<0.37	<0.37	<0.37	2.5 J
D-2-3	12/05/02	0.16 J	<0.0023	<0.0023	<0.0023	<0.0045	<0.0057	<0.0057	<0.0057	<0.0057	<0.057
D-3-3	12/05/02	2,600	0.070 J	11	3.4	77	0.14 J	<0.52	<0.52	<0.52	<10
D-4-3	12/05/02	130	0.29	1.9	1.5	13	0.32	<0.19	<0.19	<0.19	0.54 J
D-5-3	12/05/02	75	0.027	0.044	0.0013 J	0.033	0.028	<0.0075	<0.0075	<0.0075	1.0
D-6-3	12/05/02	280	0.20	2.2	2.0	15	6.3	<0.26	<0.26	<0.26	7.1
D-7-3	12/05/02	770	0.36	5.9	5.0	40	1.4	<0.29	<0.29	<0.29	5.3 J
D-8-3	12/05/02	1,300	0.84	8.2	6.6	55	9.0	<0.54	<0.54	<0.54	11

**Product Line Replacement Soil Samples analyzed by EPA method 8015B and 8260B**

PL-1-2	12/05/02	<1.0	<0.0017	<0.0017	<0.0017	<0.0035	0.0080	<0.0043	<0.0043	<0.0043	0.061
PL-2-2	12/05/02	<1.0	<0.0018	0.00063 J	0.00072 J	0.0044	0.024	<0.0045	<0.0045	<0.0045	0.013 J
PL-3-2	12/05/02	4,300	5.0	31	12	150	7.1	<1.1	<1.1	<1.1	<21
PL-4-2	12/05/02	31	0.084	0.21	0.040 J	0.15	2.1	<0.19	<0.19	<0.19	2.3 J
PL-5-2	12/05/02	1,100	0.64	7.3	7.4	50	6.6	<0.45	<0.45	<0.45	5.7 J
PL-6-2	12/05/02	890	0.81	9.2	2.2	43	8.1	<0.28	<0.28	<0.28	15
PL-7-2	12/05/02	1.8	0.023 J	0.042 J	<0.046	0.12	1.1	<0.11	<0.11	<0.11	<2.3

**Stockpile soil samples analyzed by EPA method 8015B and 8260B**

SP-1	12/09/02	0.62 J	<0.0018	<0.0018	<0.0018	0.0013 J	0.071	<0.0045	<0.0045	<0.0045	0.11
SP-2	12/09/02	30	<0.13	0.18	0.12 J	1.6	1.3	<0.32	<0.32	<0.32	3.5 J
SP-3	12/09/02	260	<0.12	0.42	0.098 J	5.3	<0.30	<0.30	<0.30	<0.30	<5.9

**Notes:**

TPHg = Total petroleum hydrocarbons as gasoline  
 MTBE = Methyl-tertiary-butyl ether  
 DIPE = Di-isopropyl ether  
 ETBE = Ethyl-tertiary-butyl ether  
 TAME = Tertiary-amyI-methyl ether  
 TBA = Tertiary butanol

mg/kg = Milligrams per kilogram

EPA = Environmental Protection Agency

J = Estimated value (below laboratory reporting limit and above the method detection limit)

<0.0050 = Below reporting limit and method detection limit

## **Appendix A**

### **STANDARD OPERATING PROCEDURES**

## **Standard Operation Procedure for Drilling and Soil Sampling Techniques**

The following section describes field techniques that are performed by SECOR International Incorporated (SECOR) personnel in the performance of soil sampling and drilling.

### **Locating Underground Utilities**

Prior to the commencement of work on site, SECOR researches the location of all underground utilities with the assistance of Underground Service Alert (USA - Southern California toll free phone number 1-800-422-4133). USA contacts the owners of the various utilities in the vicinity of the site to have the utility owners mark the locations of their underground utilities. In addition, SECOR hires a professional subsurface utility locator company to attempt to locate any subsurface utility that may exist at the site. Prior to drilling, each boring is advanced manually using a hand auger and post-hole digger to a minimum depth of 5 feet to avoid contact with underground fuel distribution and/or vent lines and other unmarked utilities.

### **Soil Boring and Soil Sampling Protocol**

Drilling and soil sampling are directed by a SECOR geologist working under the supervision of a State of California Registered Geologist or Civil Engineer. The soil borings are drilled using a truck-mounted drill rig equipped with hollow stem augers.

Soil samples for potential chemical analyses, field screening, and logging purposes will be collected at 5-foot depth intervals. Soil sampling is performed in accordance with American Society for Testing and Materials Method 1586-84. Using this procedure, a California-type sampler is driven into the soil every 5 vertical feet by a 140-pound weight falling 30 inches. Three 6-inch brass liners are placed in the sampler for sample collection. The number of blow counts required to advance the sampler 18 inches are recorded at each sample interval onto soil boring logs. The lower-most intact soil sample is retained for chemical analysis. The ends of the brass sleeve are covered with Teflon™ sheets and plastic caps or (using EPA 5035) inserted into 5-gram EnCore™ sampling containers. Each sample is then labeled, identified on the Chain-of-Custody, and stored in a chilled cooler for transport to the analytical laboratory for analysis. Remaining soil in the sampler is placed in re-sealable plastic bags and allowed to reach ambient temperatures. Headspace vapors in the bags are field screened with a calibrated photo-ionization detector (PID) or equivalent equipment. The highest observed stable reading is then recorded onto the boring log. A portion of the soil sample is then used for lithologic classification and description by the Unified Soil Classification System.

All down-hole drilling equipment is steam-cleaned prior to use and between each boring to reduce the chances of cross contamination. The split-barrel sampler is washed in a soap solution and double rinsed with tap and purified water between each sampling event to reduce the potential for cross contamination between samples.

Soil cuttings and decontamination water generated during drilling activities are containerized in labeled DOT approved 55-gallon steel drums for disposal/recycling in accordance with all applicable State, Federal, and local regulations.

### **Soil Sample Analysis**

Soil samples are submitted to an Atlantic Richfield-approved, State-certified laboratory for analysis of gasoline range organics C<sub>4</sub>-C<sub>12</sub> (GRO) using EPA Method 8015M, and BTEX, MTBE, DIPE, ETBE, TAME, TBA and ethanol by EPA Method 8260B.

## **Standard Operation Procedure for Groundwater Monitoring Well Construction and Groundwater Sampling Techniques**

Monitoring wells are constructed using either 2-inch or 4-inch diameter flush-threaded Schedule 40 PVC blank and screened (0.010-inch or 0.020-inch slots) casing. The annular space surrounding the screened casing will be backfilled with appropriate sized sand (filter pack) to at least 2-foot above the top of the screened section. The remaining annular space will be grouted with bentonite slurry and/or Portland cement to the surface. A locking well cap and traffic rated well vault box will then be installed on top of the well to prevent unauthorized access of the well; the box will be installed slightly above grade to limit infiltration of surface waters.

### **Groundwater Sampling**

All wells are gauged for total depth, depth to water, and depth to liquid phase hydrocarbon (if present) using an interface probe. Measurements are referenced to a datum marked at the top of each well casing denoting the point at which the casing was surveyed.

A minimum of three well casing volumes of water are purged from the wells prior to sampling using a vacuum truck. During the purging process, electrical conductivity, pH, temperature, and turbidity are measured and recorded to ensure that formation water entering the well casing provides a groundwater sample representative of the aquifer. Purging continues until successive measurements stabilize within a range of 10% for each parameter.

Once the wells recharge to at least 80% of their initial water volume, groundwater samples are collected by lowering a disposable bailer attached to clean string through the well casing. The water from the bailer is then decanted into sample vials, sealed (excluding headspace), labeled, logged onto chain-of-custody forms, and placed in a chilled container for transport to the analytical laboratory for chemical analyses.

### **Groundwater Sample Analysis**

Groundwater samples are submitted to an Atlantic Richfield-approved, State-certified laboratory for analysis of GRO using EPA Method 8015M, and BTEX, MTBE, DIPE, ETBE, TAME, TBA and ethanol by EPA Method 8260B.